

ANALYTICAL AND APPLICATION MODEL OF MEMORY LAYERS IN THE HISTORICAL CENTRE OF LODZ, POLAND

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Abstract

This paper presents the results of urban studies of the New and Old Market Square in Lodz, Poland. The research concerns the historical center, which suffered considerable destruction during World War II, also documenting the boundaries of the destroyed Litzmannstadt Jewish Ghetto. This destruction and subsequent processes of not necessarily successful rebuilding contributed to the loss of urban and architectural heritage. The paper presents rarely available source materials, from the 19th century, through the 20th century to the present. It uses the analytical and application method for comparing site history layers and records designed for the area. Results illustrate the resilience of the city to crisis situations, through the rebirth of its spatial structure, still on a similar warp, referring to the original layout. Elements of memory and identity have been applied to contemporary projects to revitalise the historic centre as part of the redevelopment of Staromiejski Park. The method may serve as an example of how to analyse areas undergoing processes of deterioration in order to carefully direct repair measures. The proposed juxtaposition of the city's urban layers makes it possible to document and analyse processes, highlight surviving places of identity and create guidelines for further applications.

Keywords: WW2 devastation of cities; Post-war reconstruction process; Urban layers mapping; Historical Lodz centre; Urban resilience

Introduction

Urban research on cities experienced by warfare is a timely topic and, because of active conflicts, still needed. There is an apparent research gap in the field of World War II studies, with much material still unpublished. The digitisation of archives and the return to primary documents, saved from their loss – contribute to the deepening of the threads concerning individual towns. We are aware that the destruction of World War II and the failed reconstruction processes contributed to the irretrievable loss of the historical and cultural heritage and sometimes the identity of cities [1]. Here, documenting the destruction and systematising the post-war reconstruction and redevelopment processes is a subject that still requires more in-depth research [1–3].

This research cannot be carried out without the necessary context of the historical identity of the areas, the socio-demographic changes and the policies that had a significant impact on the urban–architectural transformation after 1945. The reconstruction phase was unfortunately rarely associated with reconstruction, despite the exemplary – archetype of Warsaw functioning in

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Poland. Warsaw – a city reconstructed with great care, but in a small part is rightly honoured as a Unesco World Heritage Site. The reconstruction of Warsaw and other Polish cities was abandoned relatively soon after the war, the scale of the destruction not permitting. Most cities were rebuilt after the war, shaped under the influence of politics and ideology, including – to the detriment of the city's historical and urban heritage – in the spirit of socialist realism and then modernism. Today we are returning to reconstruction, an example of which in Poland is not only Elblag, but also Szczecin, Glogow and other centres [4, 5].

Lodz is an interesting example of a post-industrial city whose dynamic 19th-century development collided with the difficult history of the 20th century. Lodz experienced an exchange of its community of inhabitants. As late as the 1930s, it was a multicultural city – inhabited by Poles, Germans, still Russians and, above all, a significant Jewish population [6, 7]. Recorded on city maps as a symbol of the extermination of Lodz's Jews during World War II by the German occupiers was the Litzmannstadt Ghetto. There was also considerable destruction of the physical structure in this area. During World War II, the city became a testing ground for the efforts of German architects to transform Lodz into a *German city* [8]. Deserted after the war, it became a foreign city—a place for newcomers. The processes of growth and post-war redevelopment distanced the city from its historic centre, the place of its identity.

The issue of mapping historically destroyed areas and searching for restoration returns in the context of current conflicts. The war in Ukraine leaves many questions about the models and process of reconstruction and the consolidation of urban heritage – urban identity [9]. The analysis of the historical development – Lodz's layers of memory – was a part of the design process for the resulting concept of Staromiejski Park (Old Town Park) presented in this article. A concept that attempts to balance the contemporary functions of public spaces and the city's place of memory. It also addresses the current problem of a resilient city that can build wisely on its identity. The revitalisation of the Park and adjacent areas illustrates the applicability of the research methods adopted.

According to the objectives of the article, the state of research included in the article's bibliography covers the following subject areas:

- 1) the destruction and reconstruction of European cities [1–14];
- 2) the history of urban development of the city of Lodz [15–27];
- 3) theoretical basis in the area of research methodology – urban transformation processes in the context of urban resilience and identity [28–34];
- 4) primary sources and urban planning documents [35–37].

Materials and Methods

The method is based on historical–comparative analyses of the layers that form the basis of studies of European cities in the context of World War II destruction and post-war reconstruction, a method developed by K. Racoń-Leja [1]. The analytical and application model goes beyond the typical urban or morphological analysis, although it refers to it [29]. The diagnostic and comparative nature of the research aims to search for commonalities within the process of city formation – in this case, the city of Lodz. The research refers to the period from the 19th century to the present. The results expose the growing structural layers – the layers of memory of the city, referring to its identity [30]. The final part of the model is its design application. The method of analysis refers to the following research layers:

1) layer of memory – the lost city (from the 19th century to World War II); the area of research in this area concerns the search for the main urban framework and the historical identity of Lodz;

2) layer of memory – the experienced city (during World War II); the research in this area concerns the concept of the Litzmannstadt Ghetto and attempts to transform Lodz into a German city;

3) layer of memory – the city under reconstruction (after World War II); research here refers to post-war demolitions, reconstruction and the further process of transforming the city;

4) layer of memory – the contemporary city; in this section, contemporary attempts to search for lost identity are shown on an applied model – the concept of revitalising of Staromiejski Park.

The main area of the research is the historical city centre, related to the medieval location of Lodz. It comprises the Stary Rynek (Old Town Square) with neighbouring buildings and the main square of the New Town – the octagonal Nowy Rynek (New Market Square), together with neighbouring quarters. Rarely published, archival source materials and original design drawings were included in the research. These have been juxtaposed to allow for comparative research.

Results and discussion

1st Layer of memory – a lost city (19th century to World War II)

Lodz is a city that built the basic framework of its urban structure in the 19th century. The spatial and demographic growth of the city from an almost agricultural settlement to an industrial empire was the result of a single legislative change – the introduction of favourable legal conditions for the development of the textile industry by the authorities of the Kingdom of Poland between 1820 and 1828.

New Town – southward development of Lodz

To the south of the Old Town, on government land as part of the industrialisation of the country, a New Town was already established in 1821–1824 [17]. The Old Town was left in its original, existing form. The regulation of the Old Town in the 1820s did not introduce radical changes to the existing urban layout, but helped to consolidate it (Fig. 1). It also delimited places for the Jewish community to live in the area, as can be evident on the Brochocki plan of 1859 (Fig. 2).

On the other side of the Lodka (Łódka) River, the location of a compact textile settlement, with a geometrically ideal form, called the New Town, was determined. The plan of the New Town gained a clear composition, the most important element of which was an octagonal market, called New Market Square (Nowy Rynek). The market was situated at the intersection of the main exit streets, marking the sides of the world. At the intersection of the square and the axis of the main route – Piotrkowska Street, the main public buildings were located, including the town hall, built in 1827 and the Evangelical Church, dedicated to the Holy Trinity, built in 1828 [17]. The delineated plots at the New Market Square were quickly settled. In the following years, 1824–1828 further settlements of cotton and flax weavers and clothiers were delimited [17].

The pace of the city's development was impressive, with an almost 800-fold increase in population over an incomplete century – from 767 inhabitants in 1820 to around 600,000 inhabitants in 1918 [17-19]. Several factors contributed to this rapid process, including the industrialisation of textile production or the abolition of customs duties on trade with the Russian market. The connection to the Warsaw-Vienna railway line was particularly important for the city. In the years that followed, manufactories began to spring up and water-powered factories were built along the rivers.

There was an intensive influx of workers and skilled labour from abroad, mainly from Saxony, Prussia, Bavaria, the Rhineland, Bohemia and Moravia. Settlers settled in new areas in the south. The Old Town was transformed into a Jewish quarter. Lodz became a multicultural city. Until World War I, the city retained its multinational character. In 1914, Poles made up 50.9% of its population, 32.5% were Jews, 15.0% were Germans and Russians and other nationalities accounted for 1.6% [19]. Before World War I, due to rapid densification, the city became one of the most densely populated industrial cities in the world, with a population density of up to 12,500 people per km² [19].

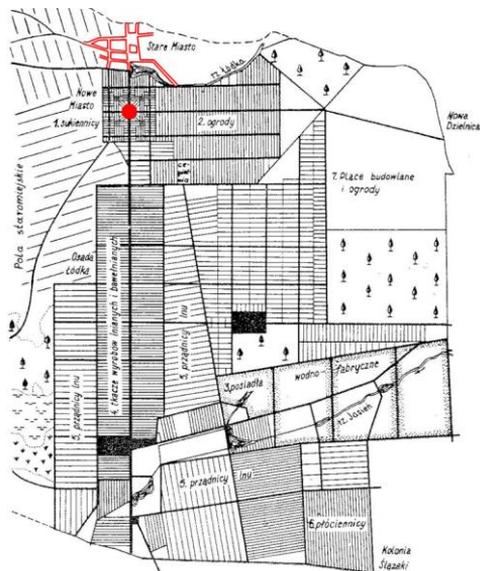


Fig. 1. Urban layout of Łódź circa 1840, Old Town marked in red in the northern part; red point indicates the location of New Town Square [Source: author’s study based on Kotler’s 1969 plan]



Fig. 2. The Old Town after the regulation according to Brochocki’s plan of 1859; the number indicates the location of the Old Town Square (1)

The devastation of World War I and the Interwar Period

During World War I, the city came under German occupation, suffering significant losses. The most dramatic was the population decline, amounting to some 258,000 people or 43%, as a result of refugees, forced deportation and the evacuation of Russian officials and their families. Many factories were closed, production facilities were plundered and largely taken away and trade with eastern markets was frozen [18, 19].

The interwar period is a new, albeit brief, page in the city's history. Lodz becomes a provincial city, the seat of the Roman Catholic diocese and the headquarters of a military district in the reborn Polish state. Thanks to the new functions, administrative centres appear in the city, housing investments are developed and the municipal infrastructure is expanded. Existing rivers within the city are canalised. Lodz returns to industrial production, becoming the main centre of textile production in Poland. Production returns, but industrial development is no longer as dynamic as before. The city struggles with wartime damages, the loss of the eastern market and the global economic crisis of the 1930s. However, in the twenty years following World War I, the city's population almost doubled, rising from 341,800 to 604,600 in 1931 [35].

2nd Layer of memory – a city experienced (World War II)

Lodz was occupied by the armies of Nazi Germany as early as 9 September. As early as 8 October 1939, it was incorporated into the Third Reich, into an area called the Wartheland (Reichsgau Wartheland). In 1940, the name of the city was changed to Litzmannstadt and in July 1941 the pre-war municipal emblem was replaced by a new one with a swastika.

Lodz – a German city

During the German occupation, planning documents were produced (Figs. 3–5), which indicated the directions of radical changes in the structure of Lodz and its surroundings (Fig. 3), [5, 8, 20, 21]. The city's occupying Superintendent, Franz Clemens Schiffer, identified giving Lodz a *German face* as one of the more urgent tasks. The introduction of a '*new order among people and all things*' was one of the elements of the radical redevelopment of Lodz, outlined in the General redevelopment plan (Generalbebauungsplan Litzmannstadt), transforming it into a *German city*. Several well-known planners from the Third Reich worked on the designs. Willhelm Hallbauer arrived in Lodz at the end of December 1939. As the city's chief urban planner, he was establishing a new Building Authority. Hallbauer proposed a radical reconstruction of the city and in 1940 he entrusted the city planning to the Berlin architect Walther Bangert. In April 1940, Hans Bartning was nominated as the Lodz City Planning Authority [8].

Litzmannstadt Ghetto

Radical redevelopment was envisaged in the northern part of the city, in Baluty (Bałuty), a chaotic area with infrastructural deficiencies, where most of the buildings were in a deteriorated state of conservation. The existing buildings were inventoried and selected for demolition, most of the buildings were to be removed for planned new housing complexes. Part of this area was included within the ghetto. The Litzmannstadt Ghetto was created from February 1940 to May 1941. The complete isolation of the ghetto area – by closing off access – occurred on 30 April 1940 [20]. Planned demolition of wooden buildings and those in the worst technical condition began from 1940 and the ghetto became a source of post-demolition building materials.

As early as September 1941, a master plan for the city's redevelopment was drawn up at the Planning Bureau. The project envisaged the redevelopment of the inner-city fabric surrounded by projected satellite settlements, isolated from the central part by green belts. The green belts were to extend well beyond the urban turnpike and into the open suburban landscape. River valleys were to be protected from development and act as green corridors. The plan was characterised by the gigantomania typical of studies carried out for the Third Reich [8].

An innovative vision for the formation of a natural system (contemporary blue-green infrastructure corridors), was to be realised by demolishing densely built-up and inhabited quarters (Fig. 3). In the city centre, a network of representative squares connected by avenues and numerous demolitions for green ventilation corridors was planned. One of these, much wider than the others, was planned for the Lodka (Łódka) River valley and ran through the Old Town, through the middle of the Jewish quarter (Fig. 4).



Fig. 3. Plan for the creation of a system of green corridors in the Lodz agglomeration; dark grey colour indicates existing forests, 1941 [Source: Museum of the City of Lodz]



Fig. 4. The boundaries of the Litzmannstadt Ghetto on a pre-war map showing the nationality structure of the city's inhabitants in 1940; yellow colour indicates the Jewish, red – Polish, black – German population [Source: Historical Atlas of Lodz]

The demolitions planned as part of the construction of the ghetto concerned the oldest part of the city. The demolition of entire quarters by the German occupier was carried out just beyond the southern border of the ghetto, as part of the creation of a *sanitary zone*. The demolition belt was intended to reinforce the isolation (control) of the ghetto and was at the same time the implementation of part of the objectives of the master plan for the reconstruction of the city (Figs.

5–7). The new district, planned on the site of pre-war Baluty, was to be separated from the rest of the city by a green belt about 200m wide, located in the valley of the Lodka River.



Fig. 5. Master plan of the city's redevelopment, 1941; the red dots indicate the location of the historical markets [Source: Historical Atlas of Lodz].

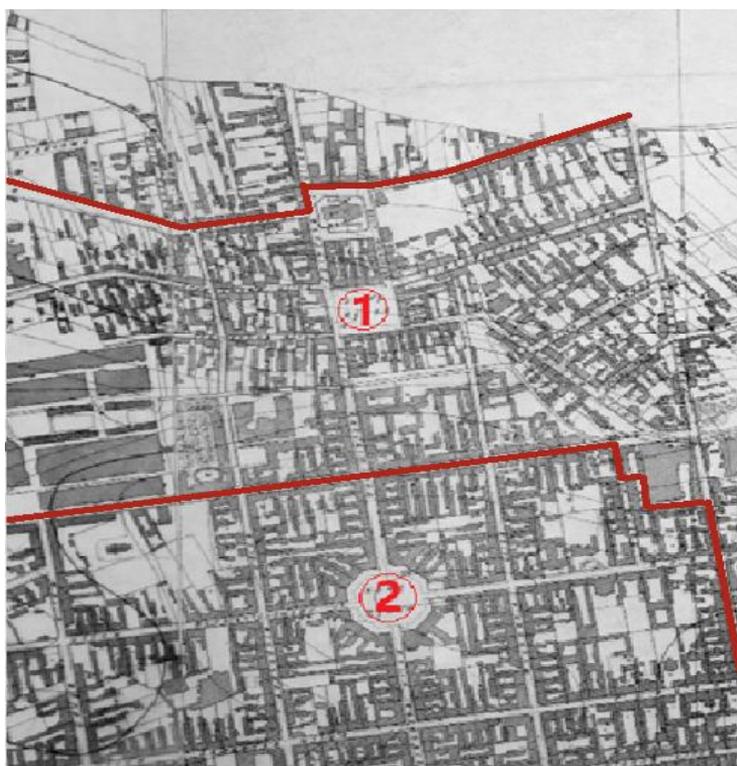


Fig. 6. The boundaries of planned demolitions on Jasiński's map of 1917; numbers denote: (1) Old Market, (2) New Market Squares [Source: authors' compilation based on a map from Atlas miasta Łódź]

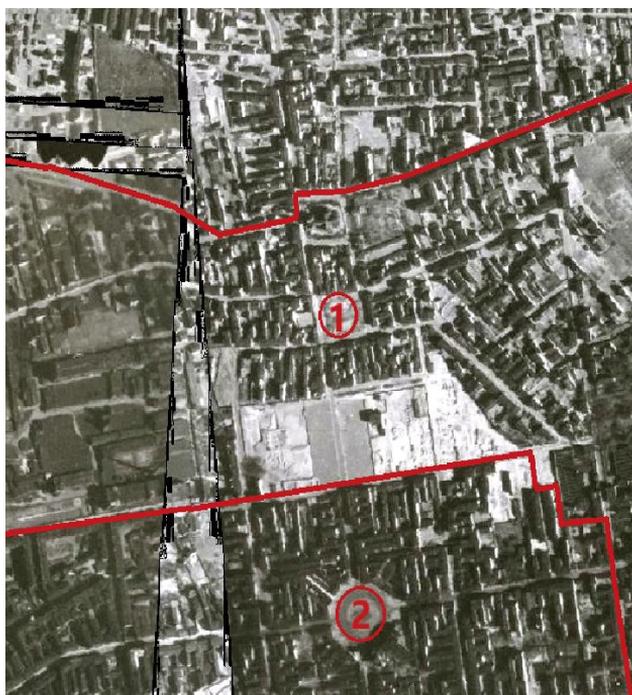


Fig. 7. Boundaries of planned demolitions on aerial photographs from 1942.

The photographs show demolitions in the *sanitary zone* of the Litzmannstadt Ghetto; numbers denote: (1) Old Market, (2) New Market Squares [Source: authors' compilation based on map from the Atlas miasta Łódź].

Wartime losses

The percentage destruction in terms of urban structures was not as significant as in other Polish cities. However, the historic centre, including the Old Town, the pre-war Jewish quarter, which fell within the ghetto boundaries, was almost completely devastated [24]. The *sanitary zone*, which included several pre-war quarters on the border with the ghetto, was demolished by the occupiers [23].

World War II dramatically changed the ethnic structure of the population (Fig. 4). On the eve of the war, the city had a population of around 680,000, including 230,000 Jews (34%) and 60,000 Germans (9%). Poles, numbering over 380,000, made up about 57% of the population at the time [17, 18]. Social losses were enormous. As a result of the actions of the German occupier, the Jewish population was almost entirely exterminated. Approximately 250,000 Jews from Lodz and the surrounding area were confined in the Litzmannstadt Ghetto created by the German authorities. Of the ghetto's inhabitants, only 830 Jews lived to see liberation [24]. During the occupation, the Polish community was also exterminated and relocated and around 100,000 Poles were murdered or deported. After the end of the war, in 1946, Lodz was inhabited by 496,000 people [18]. Pre-war Lodz, as a city of many cultures, became a thing of the past.

3rd Layer of memory – city rebuilt (post-1945)

Post-war demolitions

The greatest damage to the pre-war buildings was to the area within the ghetto borders and in its foreground. The Old Town was rebuilt after the war in a new form. The reconstruction of the centre of Lodz, especially within the ghetto boundaries, was necessary due to the very poor technical condition of most of the buildings and the planned demolitions started by the occupier.

The urban layout of the district was burdened by the abandonment of regulation in the 19th century. Bałuty, during the years of the highest population growth, was formally a suburban village and developed without a regulatory plan. After the war, the need for radical spatial change was assumed for this part of the city. Despite the insignificant destruction of buildings in other areas of the city, the post-war housing famine also affected Lodz. After the war, a housing disaster was written about in the city. In the ghetto area, the Germans demolished 35,000 chambers during the occupation. During the first post-war years, a further 15,000 chambers of housing were demolished due to their disastrous technical condition and a further 90 buildings awaited demolition [6].

Retreat from the historic centre

The post-war directions of the city's development were set out in the Lodz Spatial Development Plan drawn up in 1949. The Plan's arrangements envisaged zoning development in the city, with the densely urbanised centre surrounded by a ring of lower-intensity developments. It was important to maintain regular gaps between the buildings around the city centre and to propose the formation of undeveloped land strips that could act as green aeration corridors, especially in the east-west direction. The layout of the undeveloped strips of land transitioned seamlessly into open suburban areas. The development directions adopted in the 1950s for the city and its surrounding areas were continued in subsequent planning studies.

The post-war period brings socialism, centralisation of power and nationalisation of the economy. Factories are expropriated and handed over to the state. Lodz is not devastated (unlike Warsaw) and remains the capital of the country after the war until 1949. It is here that the post-war Feature Film Studio is established and here that the headquarters of the universities are located. The state authorities concentrate production in multi-plant state companies, new industrial plants and new branches of production are established – including the electrical machinery and chemical industries. Relocation of industry outside the city centre is progressing, industrial zones are being created. Universities and metropolitan functions are developing [25].

Lodz not only returns to its position as the centre of Polish textile industry, but also becomes a scientific and cultural centre. In the 1950s, the Old Town is rebuilt in a new form. The next decades witness the development of housing estates [26]. The city grows up with modernist block housing estates in the former suburbs. Processes characteristic of the socialist period follow – the historically valuable districts are neglected as an unwanted legacy of previous periods. Long-term economic growth, industrial development and the incorporation of adjacent areas into the borders cause a continuous increase in population. Former ethnic groups are replaced by an influx of people, most of them with an agricultural background. The population has increased by almost 350,000. In 1989, the city reached its maximum size and holds 851,700 residents. The city's area increases through the incorporation of neighbouring areas as reserves for further expansion (1958 – 2ha, 1961 – 22ha, 1965 – 206ha, 1988 – 80ha), reaching a total of 294,39km² [11].

The conceptual design of the Bałuty district envisaged the construction of six housing estates for about 40,000 residents (Figs. 8 and 9). The design of the district preserved the layout of the historic nucleus of the city – the Old Town Square with preservation of its frontage, the scale of the buildings. Ryszard Karłowicz, the chief designer of the district's reconstruction, noted in 1950 that the so-called Old Town had its limitations, being the result of *'the existing, formed urban organism, with its transportation system, buildings and land division, which cannot be changed too radically'*. Karłowicz poses the question of rebuilding in a socialist form the buildings, which are also a reflection of the previous layout of the Old Market Square (Figs. 8 and 9) [6].

The designs preserve the Old Market Square, the scale of the surrounding buildings and the layout of the main traffic routes. Located within the former ghetto *sanitary zone*, the green

4th Layer of memory – application of research results (contemporary city)

For several decades, the Old Town in Lodz remained in the form designed in 1950 by the team of Ryszard Karłowicz. After the war, the city's population grew rapidly. The construction of housing estates in the centre was a response to the city's housing crisis. At the end of 1960, Lodz had a population of almost 715,000. Approximately 162,500 people lived in the newly created district of Śródmieście, with an area of about 6.6 km², or about 3.1% of the entire city. This constituted over 22% of the population of the entire city of Lodz. The population density was 246 persons per hectare. Almost 70% of the immigrant population came from villages and small towns and exceeded the native population in the early 1970s. In 1952–1955 alone, 80,000 peasants moved to Lodz [21].

The spatial layout of the Old Town remained unaltered, but the conditions for the city's development changed drastically. After the political change in 1989, there was a crisis and collapse of the textile industry. The state-owned industrial plants, having been cut off from the eastern markets, were unable to compete on the free market. Land and post-industrial buildings were fragmented and taken over, often as a result of accidental divisions by private investors. Giant marketplaces sprang up outside the city. The possibility of finding work in industry in Lodz was declining rapidly, from 171,000 people in 1990, through 91,000 in 1996, to 50,000 in 2007. Unemployment was rising in the city, reaching around 19% in the 1990s. [18]. The labour market crisis contributed to a drastic demographic decline. The city urgently needed local policy changes to curb the growing trend of post-industrial shrinking of the city.

Local policy was directed towards improving conditions for economic development, improving the quality of life and building the city's trademark. In 1997, a special economic zone was established. The manufacturing market has gradually been supplemented by services. Within the framework of spatial policy, the need to emphasise the city's identity was defined. The industrial heritage, once seen as a resource to be demolished, became a matter to be adapted to new functions and a subject for place branding [27].

The strategic documents adopted by the City Council, defining the directions of Lodz's development, identified the city centre as needing revitalisation due to social problems and the presence of valuable cultural heritage assets. The Strategy clearly indicated that a dynamically evolving centre is a key factor in the development of Lodz as a whole [28]. Local authorities have started to develop the area-based redevelopment programmes for the city centre. In 2018, Łódź started intensive efforts to change its spatial policy and announced them in the Spatial Development Directions Study. The city declared the so-called: 'Return to the Centre', i.e., a programme of inward city development. The programme translated into the accumulation of financial resources in the area of activities related to the renewal of the urban fabric, revitalisation of public spaces and revalorisation of green areas. The main objective of the 'Spatial Development Strategy for Lodz 2020+' was to create conditions for the development of a compact city, with priority given to creating a new quality of life for its inhabitants.

The Revitalisation Act, adopted into Polish legislation in 2015, facilitated not only the implementation of regeneration projects for degraded areas but also the acquisition of EU funds. Developed in 2018, the Revitalisation Programme of Lodz indicated an area in urgent need of intervention. The revitalisation area covered mostly the central areas known as the Greater Urban Zone.

The most valuable areas in the centre were located in the core of the Greater Urban Zone. The core included the urban layouts most relevant to the city's cultural heritage, protected to varying degrees under the Cultural Heritage Protection Act. It was divided into 20 areas, eight of which were given priority status.

Lodz has received the largest funding of any Polish city for revitalisation projects. The total value of revitalisation works presented in the ‘Revitalisation Programme for Lodz 2017–2026’ is PLN 369,708,171. The City’s share is 47.03%, with the EU and private entities accounting for the remaining 52.97%. In the first stage of revitalisation, it is planned to finance works in eight priority areas of intervention in the Area Revitalisation Programme (Fig. 10), [37].

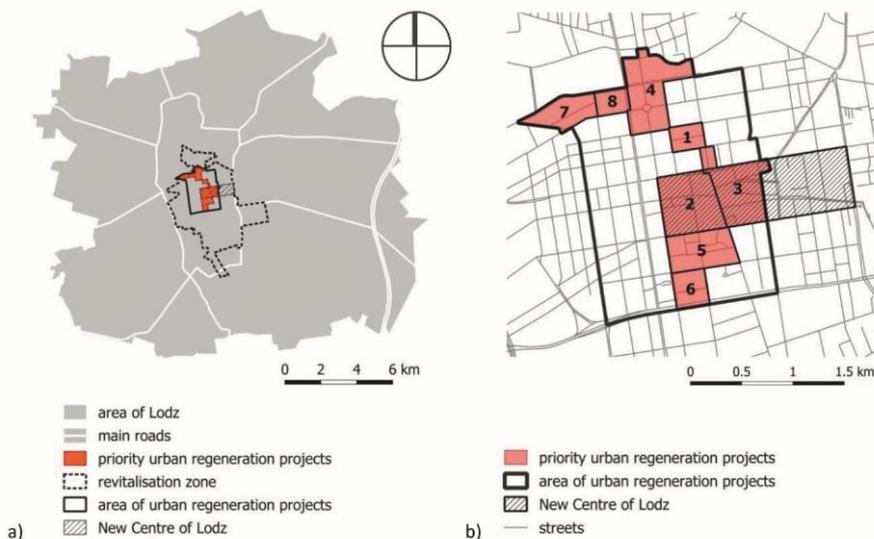


Fig. 10 Location of 8 priority areas in the Area Revitalisation Programme for the centre of Lodz; left – city scale, right – historic centre

Application of analytical results

The results of previous research into the history and memory layers of the site were used in the conceptual study. Area number 4 is a sensitive site for the history of the city, the redevelopment project includes: Old Market Square, New Market Square (now Plac Wolności) and Staromiejski Park at the former ghetto *sanitary zone*. An interesting example of measures emphasising the identity of a place is the redevelopment project for Staromiejski Park. The park has been composed in a corresponding historical outline with an octagonal composition emphasising the view axes in the neighbourhood (Figs. 11 and 12).

The revitalisation project symbolically restores the pre-war layout of streets and buildings through the use of greenery, small architecture and lighting. The former intersection of Wolborska and Jeruzolimaska Streets has been replicated by slope retaining walls and the location of buildings and frontages has been made visible in the floor drawing. Low plantings in the form of hedges were intended to show the outline of the pre-war buildings, but this part of the development was abandoned during the course of the project. The entrances to the former Elias Karo Market Hall are shown by the gates, which relate to the pre-war entrances on the same site. They constitute an element of small architecture in the park layout.

The project to redevelop Staromiejski Park and the Old Market Square was carried out as part of the implementation of the policy assemblage of the return to the centre and the idea of emphasising the identity of the place. The assumptions for change were defined on the basis of archive queries and analyses of the layers of urban development. Consideration of the results of historical research formed the basis for the appropriate design process for the area. By considering the historical conditions, the area and the park in question can be an example of a transformation that restores the memory of the city’s lost history (Figs. 13 and 14).



Fig. 11. Buildings and plot boundaries reflecting historic urban layers. Survey divisions show the pre-war structure of the Old Town, 2024; numbers indicate: (1) Old Market, (2) New Market Squares [Source: authors' own compilation based on www.mapa.lodz.pl]



Fig. 12. Development of the historic city centre, 2024 [Source: orthophotomap, www.mapa.lodz.pl]



Fig. 13. Two gates that symbolise the pre-war entrance to the Elijah Karo Market Hall as part of the Redevelopment project for Staromiejski Park [Source: 3D Architekci]



Fig. 14. Redevelopment design for Staromiejski Park, with elements emphasising the pre-war urban structure of the area, as part of the Lodz City Centre Revitalisation [Source: 3D Architekci]

Discussion – towards a resilient city

Lodz and the history of transformation of its centre is an example of a city possessing evolutionary resilience [28]. The resilience of cities is presently not only defined as the ability to return to the initial state after a crisis, nor as achieving a better state than the initial state. One of the facets of city resilience is evolutionary or adaptive resilience, which implies a continuum of evolutionary change in the urban system [31–33]. The historical conditions and factors of place development influence a city's resilience. Among other things, evolutionary resilience depends on the key decisions made in the past.

Several turning points in the history of Lodz can be defined that influenced the city's development. One of the first is the rapid growth of Lodz in the 19th century associated with the introduction of favourable legal conditions for the development of the textile industry. Already an industrial powerhouse, the city was subjected to cyclical upheavals related to armed conflicts, economic and political changes. The most dramatic turning point in the city's history was the outbreak of World War II, the establishment of the ghetto, the extermination of the Jewish and Polish populations and the demolition of the quarters in the centre as part of the spatial structure. Lodz is a city where, instead of a single equilibrium, we see a path of development in which historical processes and the economy evolve in the face of changing conditions.

The reconstruction of the city centre in the 1950s demonstrates that Lodz's spatial and functional layout has a continuous capacity for adaptation and transformation. The reconstruction of the historic centre consolidated the main elements of the city's historical matrix by preserving the location of the Stary Rynek (Old Square), maintaining the main traffic routes and the scale of the buildings. The post-war reconstruction of the northern part of Lodz shows that the city – after absorbing the external disturbances brought about to a large extent by the German occupation – shows an ability to adapt to new conditions. Even under communist reality, it is transforming and reviving its historic centre in a new form.

This is a process in line with the theory of evolutionary resilience, which assumes: cyclical resilience in the face of external shocks, constant adaptation to new conditions and continuous

transformation [31, 32, 34]. The city is not only subject to external impulses. In the process, attention should also be paid to internal factors that can lead to disruptions but can also initiate a reorganisation of the system. In the case of Lodz, the internal factors are strategic decisions taken by local leaders, among other planning solutions. For more than two decades, the local authorities have been pursuing a policy of returning to the centre and part of this policy is the project of area-based revitalisation of the centre of Lodz. One of the investments in the revitalisation is the redevelopment of Staromiejski Park with an emphasis on the pre-war history of the place. The transformation of the centre of Lodz is an example of a city possessing evolutionary resilience, with a permanent spatial genotype of the place.

Conclusions

The expansion of Lodz through the establishment of the New Town, located in the vicinity of the medieval settlement, caused the shift of the city centre to the south. The designation of a Jewish community in the Old Town was the beginning of the transformation of the historic part of the city into a Jewish quarter. World War II was a period of obliteration of place-based history, extermination of residents, destruction of the existing buildings. Most of the Old Town was included in the ghetto, some quarters were demolished. Postwar reconstruction referred to the pre-war layout, but was a transformation of previous forms. Subsequent layers of reconstruction within the revitalization of Lodz's city centre are an example of restoring the identity of the place. Preservation of the historic layout of the city and its scale shows that Lodz has evolutionary resilience – it maintains its character and functions, despite disturbances and turning points in its development.

The article illustrates the use of the authors' proposed research method – systematizing the various urban layers – layers of memory of the city. The research is carried out using queries and thorough urban and social analyses in the context of the city's history. The research method was used to develop an application model – the design of Staromiejski Park, which skillfully combined aspects of the historical identity of the place – of the city with its contemporary function. The method may find its relevance to other cities experiencing war damage and population migration. The particular significance of the research can find its reference for the proposal of new methods of reconstruction of cities in Ukraine [6].

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